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ABSTRACT

Effects of a special remedial program at Glendale Community College were investigated to determine if there was any significant difference in college academic performance and persistence between students enrolled in the Developmental Studies program and those with similar reading and math characteristics who elected to enroll in other remedial learning courses. The Developmental Studies program consisted of five special courses taught by the team approach: basic communications, individual reading and writing, basic math, self-awareness, and career planning. The study sample consisted of all students in the fall 1974 Developmental Studies program (n=24) and a randomly selected control group chosen from among those with similar pre-admission test scores on the Cooperative Guidance and Placement Test (n=24). Student records data for the period fall 1974 to June 1977 were collected. Findings revealed that greater persistence among Developmental Studies students was significant for the first semester only. There was a notably nigher culumative grade point average among Developmental Studies students than among controls, but no greater number of units were completed over the three year period. A bibliography is included. (Author/TR)

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AN EVALUATION OF SPECIFIC EFFECTS OF THE DEVELOPMENTAL STUDIES PROGRAM ON THE ACADEMICALLY DISADVANTAGED AT GLENDALE COMMUNITY COLLEGE

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ABSTRACT

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Robert M. Bochniarz

The community college has encouraged attendance of many non-traditional and academically deficient students because of its "open door" policy. As a result, the concept of "remediation" has become a growing reality within the community college curriculum.

The purpose of this study was to assess certain effects of a special remedial program at Glendale Community College. It attempted to determine if there was any significant difference in academic performance and persistence in college between students who enrolled in the "Developmental Studies" program and those who had similar reading and math characteristics but elected to enroll in other, non-prerequisite courses of a basic learning nature. To accomplish this purpose, a Treatment Group was selected on the basis of a cluster sample (the entire Fall, 1974, Developmental Studies class); then, using the matched pair technique, a Control Group was identified in terms of similar pre-admission test scores. Data found in student records was collected on 5" x 8" cards for the period Fall, 1974, to June, 1977. (N = 24 for <u>each</u> group.)

Findings of the study revealed greater persistence by those enrolled in Developmental Studies. However, measured at the .05 level of significance, persistence was significant for the first semester only. ($X^2 = 5.78$; df = 1) The results of a <u>t</u>-test indicated a significantly higher cumulative grade average among the Treatment Group than existed among the Control Group. ($\underline{t} = 2.18$; df = 36)

Although persistence rates and cumulative grade point average indicated that many students are assisted by the Developmental Studies program, it is suggested that further study be conducted to determine methods of improving the program. Analysis of students' and teachers' points of view is recommended.

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I. TITLE

An evaluation of specific effects of the developmental studies program on the academically disadvantaged at Glendale Community College.

II. THE STATEMENT OF THE PROBLEM

Those who are referred to inter-changeably as "high risk," "marginal," "academically deficient" or "academically disadvantaged" pose a problem as they enter the open door of the community college. Inherent in accepting anyone who is either a high school graduate or eighteen years of age is the problem of what to do for them as far as course offerings if they come through the open door with academic deficiencies. Special courses and even entire programs have been developed in attempts to meet the unique needs of those academically disadvantaged people.

At Glendale Community College, a special program, called "Developmental Studies," has been designed specifically to meet the needs of the academically deficient. Each semester some twenty to twenty-five students, upon reviewing their pre-admission test scores from their counselor, opt to take Developmental Studies. Rather than take a general "Remedial" or any non-prerequisite type program, one group of the academically deficient enroll in the five-course program, which has been packaged with the objective of meeting as many of their special needs as possible during that first semester in college.

But offering such a special program to the academically disadvantaged Glendale Community College has created a special option for those who enter with low or limited skills. The intent in offering this program helps meet the "open door" mandate of the community college. But no system of accountability in terms of program evaluation has been set up to insure that for many, or indeed for most of these students, the door has not been a "revolving" one. Once the "marginal" student has gotten his or her grade card at the end of that first semester, it is assumed that he or she has been prepared adequately to go on in pursuit of further academic and vocational goals. Yet to-date, the only verification of the success of Developmental Studies graduates has been that noted by the individual and perhaps his or her counselor.

Even though members of the Developmental Studies faculty meet periodically with the Dean of Counseling to discuss ways in which to better assist student participants, the approach to program evaluation has been limited. Major changes in Developmental Studies have been limited principally to course or faculty changes within the program. Few faculty can, or have wanted to teach the academically disadvantaged. And thus little has been done to evaluate the extent to which the Developmental Studies Program has contributed to Glendale and to those students who participate in it.

This study was, therefore, undertaken in an attempt to initiate an important step in the systematic evaluation of the Glendale Community College Developmental Studies Program. The primary purpose of the study is to determine if there has been any significant differences, statistical or other, between those students who receive the Developmental Studies treatment and other, similar students who do not. These differences, measured in terms of student persistence and academic performance, are central to the study.

III. THE HYPOTHESES

The hypotheses of this study concern differences, which were examined and tested for statistical significance, between two homogeneous groups of Freshmen entering Glendale Community College as remedial or academically disadvantaged. One of these groups enrolled in the Developmental Studies Program (Treatment), while the other group (Control) began the first semester in non-prerequisite, remedial type courses. Both groups numbered twenty-four as they enrolled in the college for the Fall semester, 1974.

It was hypothesized that the Treatment Group would show greater persistence and better academic performance, measured in terms of grade point average and units completed, than the Control Group. The period of time covered was from Fall of 1974 through June (Spring Semester) of 1977. The hypotheses tested were:

1.) Students enrolled in Developmental Studies have greater persistence their first semester in college than classmates with similar pre-admission test scores who were not enrolled in the Developmental Studies Program.

2.) Students who complete Developmental Studies have greater persistence their second semester in college than classmates with similar entering deficiencies who were not enrolled in Developmental Studies.

3.) Students who complete Developmental Studies have a higher cumulative grade point average over an extended period (measured through six semesters) than comparable classmates who did not complete Developmental Studies.

4.) Students who complete Developmental Studies go on to complete more total semester units of college credit than comparable students who do not complete Developmental Studies.

Other hypotheses concerning pre-admission test scores, ethnicity, sex, high school grade point average and parents level of education of the two groups studied were considered and examined, as well as discussed within the study, but these variables were not subjected to statistical analysis. (See "Summary of Student Profiles," Table V.)

IV. BACKGROUND AND SIGNIFICANCE OF THE STUDY

After ten years of the existence of the Developmental Studies Program at Glendale Community College, it was time to objectively

evaluate that program. Some of the faculty pointed out that the program seemed costly, that it served too few students and it addressed itself to the wrong population. Though seldom articulated openly, suggestions had been made by a few that the resources should be offered to students with high potential for success. Comments had been made as to whether this "type" of student ought to be served by the community college. Still other comments suggested that making it through Developmental Studies sometimes leaves students in "limbo;" that they need another treatment, "Developmental Studies II," before going on in the college program. On the other hand, some faculty have stated that high risk students who have been through the Developmental Studies Program seemed to achieve higher GPA's and they seemed to persist to a higher degree than similar students who had not experienced the program. The feelings expressed by the team of instructors who teach in the program have been firm in their convictions that some of the Developmental Studies students do succeed in being remediated more so than similar students who do not go through the program. As the controversy continued, however, no empirical evidence had been presented to prove either contention.

This study, involving the evaluation of an instructional program, it is hoped would begin to answer some of those questions that faculty and administration had concerning the Developmental Studies Program and the effect that the variable had on academic performance and persistence. It is hoped that

the study would stimilate research and further investigation into the effectiveness of the remedial program at Glendale and other community colleges.

A review of the literature revealed that there exists strong motivation to support the evaluation of programs for the high risk student. For one, "Many faculties feel that the effect of cultural or educational deprivation is irreversible by the time the student is in college." (12, p. 83) Educators with that viewpoint need to be shown objective data that may convince them otherwise. Yet when Aarons undertook a fairly recent, major study, he found two unfortunate phenomena: 1.) "Current literature shows there to be approximately 25-30 evaluations, of which only ten have some form of control group;" 2.) "The literature on evaluation appears somewhat contradictory." (1, 1975, p. 6)

Losak believes that the whole area of remediation is so important that, as he put it, "The community college will be made or broken on this issue of how well we cope with the academically underprepared." (8, 1972, p. 7) Dr. Losak is quick to suggest criteria under five areas for evaluation of a program: 1.) Academic; 2.) Personality Changes; 3.) Attitudinal Changes; 4.) Change in Self-Concept; 5.) Job Placement. (8, 1972, p. 9) In discussing elsewhere the effectiveness of reporting on these five areas, Dr. Losak clearly states that

"The criterion of academic progress is generally given the highest priority." (9, 1973, p. 43) Either a "qualitative" or "quantitative" analysis approach may be used. But Losak favors a relatively simple quantitative analysis approach in order to more simply communicate to colleagues what is happening in the program. (8, 1972, p. 19)

In another evaluation study, Roueche and Kirk point out the need for assessing the effectiveness of high risk students. In their assessment of student persistence and academic performance in four Texas Community Colleges, the two researchers found that "high risk students enrolled in special programs persisted and achieved academically to a significantly greater degree than did high risk students in non-remedial programs." (13, p. 3) Their subjects consisted of stratified random samples of students enrolled in developmental studies programs in each of the colleges in the academic years 1969 through 1972. Stratification variables were ACT scores, race-ethnic group and academic year. They found that not only were minorities (Blacks and Hispanic-Americans) able to persist and achieve higher grades than Whites as a result of the programs, but also, that those programs having peer, "tutor-counselors" and those with options on the number of courses a student could take were found to be significantly more successful when subjected to data analysis.

A more recent, state-wide study, undertaken by the Texas College and University System, revealed that forty-two of the forty-seven Texas Public Community Colleges offer developmental programs: "Of the forty-two offering developmental programs, twenty-eight monitor attrition/retention rates and twenty-four evaluate grade point average." (5, p. 8) In conducting the state-wide survey, the Coordinating Board found that with few exceptions, attrition and drop outs had decreased and grades had improved for developmental students. However, data collected was not subjected to statistical analysis in order to determine the level of significance in the Texas study.

Other methods of program evaluation include those advanced by the University of Akron. That model consists of three methods of evaluation: 1.) "Anecdotal," which consists of a survey design; 2.) "Vertical Improvement," meaning pre- and post-tests are given; and, 3.) "Horizontal Improvement," wherein comparisons are drawn in the academic progress of those disadvantaged who took developmental education and like students who selected another course of study. (6, p. 17) Gold, using the Horizontal Improvement method, examined a rather large group of developmental students at Los Angeles City College over a three-year period and found that "many of these (low achievers) are indeed assisted by the (Developmental) program." (7, p. 12)

At Glendale Community College, one study alone has been to-date undertaken to evaluate the ten-year-old Developmental

Studies Program. In 1969, Sprague evaluated the English course offered to developmental students at Glendale during the summer of 1968. An examination of the attrition rate, grade point average and change in life goals showed "a lack of significant difference between the D.S. (Developmental Studies) group and the regular (Remedial) group in each of the above hypotheses. (14, p. 62) Only a slightly less attrition rate in the Developmental Studies group over the Remedial group was reported by Sprague.

Since many hours of counseling and instructional time are devoted each week to the some twenty students who enroll each semester, the Dean of Counseling, who initiated the program, as well as the four counselors and two instructional faculty who conduct the program, expressed concern over the efficacy of devoting considerable faculty/staff time to the Developmental Studies Program. And one of the issues often referred to at the periodic Developmental Studies faculty meetings is whether the Developmental Studies Program should continue to be offered as an alternative to the high risk student.

V. OBJECTIVES OF THE STUDY

The objective of this study was to collect detailed data that described the persistence as well as the academic performance of the Glendale Community College Developmental Studies students. Although those students studied were the entire class of Fall, 1974, the study attempted to draw some conclusions relevant to the effectiveness of the program itself. That is,

efforts were made to determine whether academically disadvantaged students were better off for having participated in Developmental Studies than they would have had they participated in a program consisting of similar remedial or non-prerequisite courses.

Since this was the first program evaluation conducted in several years, a further objective of this study was to have this serve as a pilot study. Further study (or studies) may be conducted to assess one or more of the following: 1.) Developmental Studies students' perception(s) of assistance with adjustment and/or self-concept problems; 2.) Whether goals or college objectives -- that is, students' expectations were met because of participating in Developmental Studies; 3.) What improvement could be measured via pre- and post-tests in certain skills (reading, writing, math and, perhaps, studying). Another objective of this study was to determine whether the "Developmental Studies Program" was really needed at Glendale Community College, and whether specific recommendations were needed to improve the program.

VI. DEFINITIONS OF KEY TERMS

Developmental Studies Program: an educational program consisting of five special courses and extra services designed to remedy student deficiencies to a level where students can advance to other college credit courses. The program consists of a basic communications course, which combines basic grammar,

vocabulary and writing with paced reading. Students spend three days per week, one hour each day, in a classroom discussion/lecture situation; the other two one-hour sessions on other days of the week consists of working at a self-pacing, controlled reader. A second English class, consisting of individual reading and writing, involves the student in learning to write themes based on two novels and one non-fiction paperback used in the course. Through writing and re-writing five major themes, through lecture and discussion, students are also exposed to improved methods of communication. A third course, "Psychology of Adjustment," involves the student in a group experience of self-discovery. An appropriate psychology textbook is used; and the course is conducted by an experienced counselor/psychologist. (This latter course in group and self-awareness meets for one hour, three days per week.) A basic math course, consisting of simple arithmatic -- addition, subtraction, multiplication and division of whole numbers and fractions -- involves the student for one hour two days per week. (This course is set up on an objectives bases so that any student may progress through the sequence and complete the course at any time before the end of the semester.) Lastly, each Developmental Studies student takes a one-hour, one-day-a-week seminar in career planning. The course is taught by an experienced career counselor, who takes students through a series of interest and personality tests. Each student is subsequently exposed to the career center to further pursue career information. The desired goal

for this last course is the identification or discovery of a realistic career goal.

A team approach is used in the program in a couple of ways. One, the entire Developmental Studies faculty has volunteered to teach in it, and they meet at least monthly to discuss student progress and student problems. Secondly, an "A, B, C" grading system is used -- no D's or F's, but with a student option for a "credit" or "no credit" grade. Students are urged to meet with the faculty on a one-on-one basis; most faculty do have regular individual conferences.

Academically Disadvantaged: an educationally disadvantaged student who has, generally speaking, scored in the lowest decile on the CGP (Comparative Guidance Placement Test) and whose potential for failure in college is extremely high. Anyone who does poorly -- i.e., has an over-all grade average below 2.0 in High School may be considered 'academically disadvantaged' even though his pre-admission test scores were above the tenth percentile on the CGP. The term itself is used inter-changeably throughout this study with low achieving, high risk and Developmental Studies student.

Specific Effects: principally, the ability of the program to assist the student in persisting in college during and subsequent to the initial semester. The other major effects evaluated will be that of the number of units completed, as well as the academic performance (grade point average) for a designated semester or the cumulative mean GPA at selected intervals.

Attrition Rate: a measure of the number of students withdrawing completely from the college.

Persistence: the act of a student completing a semester of course work at the college.

Over-All GPA: the cumulative or total grade point average computed on a 4.0 scale. In the case of this study, the over-all GPA was computed at the end of a three-year period (Fall, 1974 until Summer, 1977).

Regular Remedial Students: students who would qualify for Developmental Studies -- that is, those who scored close to or below the lowest decile on the pre-admission, placement test (Comparative Guidance Placement Test -- E.T.S., Inc.). These students qualify for Remedial or non-prerequisite courses only. For purposes of this study, those who opt for fundamental courses in reading, writing and mathematics. (Those enrolled in English 191, English 190 and Mathematics 150.)

Glendale Community College: a public, open-door two-year institution serving some 4,200 day students and 4,500 evening students. Established as a community college district with one college, Glendale Community College is located between Pasadena and Los Angeles. And it offers the Developmental Studies Program only to district residents and only in the day curricula.

VII. LIMITATIONS OF THE STUDY

There are several limitations in this study.

1.) Because of the ex post facto nature of the study, no control via assignment over the groups utilized as Control and Treatment was possible.

2.) In order not to diminish the number of students available (N = 220), only one variable (all students below the 25th national percentile in Reading, Sentences (Grammar) and Math on the CGP) were used in matching Treatment and Control students. Variables such as age, sex, race-ethnicity, high school grade point average would have reduced the matched samples to a very small number.

3.) The impact of each of the courses upon the students in each of the two groups, measured in terms of persistence and performance in that subject, was not determined. Instead the total results or effect upon each group's experience was examined.

4.) The question of what effect the lack of a "punitive" (or D-F) grade had on the persistence/academic performance of the Treatment Group versus the full "A-F" grade on the Control Group was not assessed.

5.) This study is of limited generalizability. Although the method of evaluation is replicable, results of the study relates principally to the Glendale Community College Developmental Studies Program.

VIII. BASIC ASSUMPTIONS

A. The student groups involved in this study are relatively homogeneous. (Developmental Studies, Treatment A Group, was selected on the assumption that most of the Developmenal Studies population scored below the tenth percentile in reading, grammar and math on the pre-admissions exam (CGP, Comparative Guidance Placement Test).

B. Each group of students have responded somewhat similarly to the faculty involved.

C. The degree of difficulty of course work "A" (D.S.) is comparable to that of course work "B" (Remedial and vice versa.

D. The program being examined has not changed significantly over the last three years.

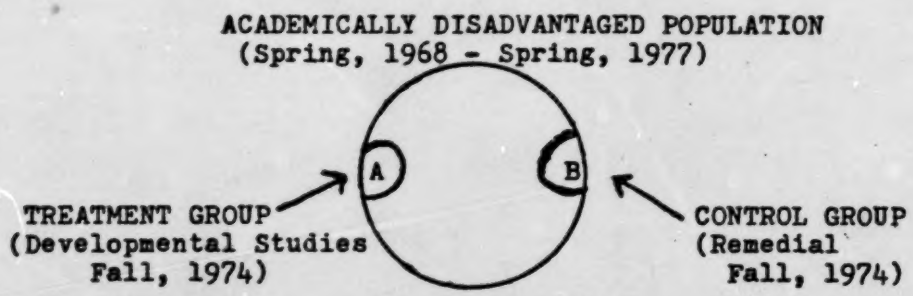
IX. PROCEDURES FOR COLLECTING DATA

The study was set up to focus mainly on the persistence and academic performance of the academically disadvantaged who participate in the Glendale Community College Developmental Studies Program. Since students who participate in that program do so almost entirely on the basis of pre-admission test scores, an element of homogeneity along those lines suggested that all Developmental Studies students might be

representative of that population. And therefore, a "cluster sample" was selected for this quasi-experimental study. (11, p. 42)

The actual description of the type of research design used in this study was found in Campbell and Stanley under "Static Group Comparison." (4, p. 12) This design ($\frac{X}{---}\ \frac{01}{02}$--) enabled the researcher to use a non-conventional, convenient approach to compare a group which has experienced a certain treatment (Developmental Studies) with a similar group (Remedial) that has not. And since those students involved in the study have already experienced the treatment, this becomes an ex post facto study.

Graphically, the sampling strategy used looks something like this:



This sampling design helped to reduce sampling error by obtaining a sample of adequate size, as well as by insuring homogeneity within the Control Group. By using the matched-pair technique, proper representation from the Control Group was also obtained in comparing the two groups.

Once a suitable cluster sample (Fall, 1974) had been selected, a copy of the files of each Treatment Group student was obtained from either Admissions or Counseling. A 5" by 8" card was made up on each student and the student's I.D. number and pre-admission test scores were recorded. Next, a search was made in the testing office of the test scores of all students who entered the Fall semester of 1974. Those who scored below the 25th percentile on reading, grammar ("Sentences") and math were listed according to I.D. number and scores. Once this culling had taken place, the test scores of this later group of students (N = 180) were match-paired with the scores of the Treatment Group (N = 24). And through a table of random numbers, selection of a Control Group equal to the size of the Treatment Group was made.

A set of 5" by 8" cards was then made up on each of the twenty-four students who comprised the Control Group. Their permanent files/records were then examined with the cooperation of the Deans of both Admissions and Records and Counseling. All data relating to persistence/attrition, units/courses completed plus the age, sex, race-ethnicity, high school grade point average, last high school attended and parents' level of education was recorded on the cards of each of the two groups.

X. PROCEDURES FOR TREATING THE DATA

Data pertaining to persistence and academic performance at Glendale Community College was analyzed and tested for

statistical significance. Those questions which involved comparing the persistence of the one group (Developmental Studies) with the other (Remedial) were tested using the chi-square technique. Frequency tables were developed in order to report comparative analysis of pertinent nominal data, as suggested by Wert, Neidt, and Ahmann. (15, p. 147) (See Tables I and II) And since interval data was involved with the questions on academic performance, a t-test appropriate for reporting group variance was applied. (See Tables III and IV) Other data of a demographic nature, mentioned above in "Procedures for Collecting Data," was recorded for purposes of simply reporting it within the results of this study.

XI. DATA RESULTING FROM THE STUDY

Hypothesis I. The null hypothesis was tested as follows: There is no significant difference between the persistence of the Developmental Studies students and the Remedial students for the Fall semester, 1974.

Table I shows the results of a chi-square (X^2) test to determine if there was any signficant difference between the two sample proportions. Developmental Studies students were found to have greater persistence than similar, non-Developmental Studies students, as hypothesized, at the .05 level of significance ($X^2 = 5.78$; $df = 1$). Therefore, the null hypothesis must be rejected.

TABLE I

OBSERVED AND EXPECTED FREQUENCIES OF PERSISTENCE/WITHDRAWAL OF DEVELOPMENTAL AND REMEDIAL STUDENTS, FALL SEMESTER, 1974

GROUP (Cell)		BEGINNING ENROLLMENT (N)	NUMBER WITHDREW fo	fe	NUMBER PERSISTED fo	fe
A	(D.S.)	24	2	5.5	22	18.5
B	(Remedial)	24	9	5.5	15	18.5
T		48	11	11	37	37

* $p > .05$

Hypothesis II. The null hypothesis was tested as follows: There is no significant difference between the persistence of the Developmental Studies students and the Remedial students for the Spring semester, 1975.

Table II shows the results of the chi-square (X^2) test to determine if there was any significant difference between the two sample proportions. Developmental Studies students were found to have no greater persistence than similar, non-Developmental Studies students. Therefore, the null hypothesis must be accepted, as stated above, at the .05 level of significance ($X^2 = 1.57$; $df = 1$).

TABLE II

OBSERVED AND EXPECTED FREQUENCIES OF PERSISTENCE/WITHDRAWAL OF DEVELOPMENTAL AND REMEDIAL STUDENTS FOR SPRING SEMESTER, 1975

GROUP (Cell)		BEGINNING ENROLLMENT (N)	NUMBER WITHDREW fo	fe	NUMBER PERSISTED fo	fe
A	(D.S.)	19	3	2	16	14
B	(Remedial)	13	1	2	12	14
T		32	4	4	28	28

* $p < .05$

Hypothesis III. The null hypothesis was tested, as stated: There is no significant difference between the over-all grade point average of the Developmental Studies students and other, similar non-Developmental Studies (Remedial) students.

Table III shows the results of a t-test to determine if there was any significant difference between the two sample proportions. Developmental Studies students were found to have a higher over-all grade point average than non-Developmental Studies students, as hypothesized, at the .05 level of significance ($t = 2.17$; $df = 36$). The null hypothesis must, therefore, be rejected.

TABLE III

COMPARING MEAN CREDIT HOURS COMPLETED BY DEVELOPMENTAL STUDIES STUDENTS WITH THAT OF THE REMEDIAL STUDENTS OVER A THREE-YEAR PERIOD (1974-1977)

	N	Mean	S.D.	t
Developmental	22	37.50	23.72	1.19
Remedial	16	28.56	22.20	

Hypothesis IV. The null hypothesis was tested, as stated: There is no significant difference between the number of credit hours completed by the Developmental Studies students and the number of credit hours completed by the non-Developmental Studies (Remedial) students.

Table IV shows the results of a t-test to determine if there was any significant difference between the two sample proportions. Developmental Studies students were found to have no greater number of units completed, as hypothesized, at the .05 level of significance ($t = 1.19$; $df = 36$). The null hypothesis must, therefore, be accepted.

TABLE IV

COMPARING MEAN OVER-ALL (CUMULATIVE) GRADE POINT AVERAGE OF THE DEVELOPMENTAL STUDIES STUDENTS WITH THAT OF THE REMEDIAL STUDENTS OVER A THREE-YEAR PERIOD (1974-1977)

	N	Mean	S.D.	t
Developmental	22	2.52	.48	2.17
Remedial	16	2.15	.58	

Table V contains a summary of other data collected on the two groups, Developmental Studies (A) and Remedial (B). Data pertaining to educational level of parents was not available in sufficient quantity to report. This data was collected for reporting and was not subjected to any statistical analysis.*

TABLE V

SUMMARY OF STUDENT PROFILE:
FALL, 1974, ENTRANTS TO DEVELOPMENTAL STUDIES (A)
AND REMEDIAL (B) PROGRAMS

	Mean Age (yrs.)	Sex M	Sex F	Race-Ethnicity	Mean H.S. GPA	Mean Pre-Admission Exam (CGP) National %ile R	G	M
Group A	19.1	13	11	6 Hispanic 17 Anglo 1 Other	1.65	8.4	16.8	22.7
Group B	22.5	12	12	11 Hispanic 12 Anglo 1 Other	2.25	8.8	18.5	19.4

*High school grade point average was not available for three of the participants in Developmental Studies; and six of the Remedial participants were non-high school graduates -- though the mean average is reported on the remaining students.

XII. OTHER RESULTS

The college records indicate that after six semesters of persistence one student from each group had earned an A.A. degree; one from the Treatment Group had earned an L.V.N. (Licensed Vocational Nursing) certificate and two from the Control Group had earned an L.V.N. certificate, and two from the Treatment Group had transferred to four-year colleges, two to other community colleges in contrast to no immediate transfers from the Control Group. This last series of data seems to indicate a greater proportion of success realized academically/vocationally by the Treatment Group.

XIII. SIGNIFICANCE OF THE DATA

Data collected and subjected to statis-trial analysis indicated that the Treatment Group did persist in significantly greater proportion for the first semester than did the Control Group. Treatment Group students also proved to have a higher mean grade point average than Control Group students. Persistence beyond the first semester, however, showed no statistically significant difference between the two groups. (It should be pointed out though that at the end of the second semester of college, sixteen (16) Developmental Studies, or Treatment Group, students were still enrolled, whereas twelve (12) non-Developmental Studies, or Control Group, students were still enrolled. That is a difference of precisely one-third or 33 1/3 %.) (See Table II.)

The actual attrition rate of the two groups compared to the rest of the college is worth noting. In the Fall of 1974, the average attrition rate for all day students was 31%. (10, p. 22) The Treatment Group, therefore, measuring approximately 11% attrition, measured very favorably. On the other hand, the Control Group, loosing 33 1/3 % that first semester, exceeded the Fall, 1974, attrition average. In terms of persistence for the first two semesters at least, the Developmental Studies Program has resulted in notably greater persistence than the non-Developmental Studies or Remedial Program. The eventual outcome over the six-semester period measured indicated what appears as an edge -- 14

students compared with 12 students persisting -- in favor of the Treatment Group. But one has to note that since the two groups are the same statistically, any difference must be attributed to chance.

Academically, as reported earlier, the Treatment Group did significantly better than the Control Group as far as grade point average. (See Table III.) But the relative difference in terms of total units completed over the six-semester period was not statistically significant. What is perhaps most important, however, as far as any of these factors concerning academic performance is whether participants in either group were able to achieve their educational/vocational goal(s).

XIV. RECOMMENDATIONS:

The results suggest that a thorough and systematic research project be done on the affective variables. One item needed to be measured and tested and which was not addressed in this study is the effort expended by Treatment Group students who persisted as compared to Control Group students who persisted as they progressed through the semester(s).

Another study which might be considered is one in which as pre- and post-test is given. (One major researcher, however, strongly suggests a design in which pre-testing is eliminated.) (8, 1972, p. 14)

On the basis of the findings of this study, specific recommendations are made and will be presented to the Dean of Counseling, the Academic Dean of Instruction and to the members of the Developmental Studies team.

In order to further meet the needs of additional high risk students, and do a more thorough selection and diagnosis before and after they enter college, the following practices should be in effect:

a. Help make all counselors aware of the importance of suggesting Developmental Studies to academically deficient candidates.

b. Extend the maximum score to the 30th percentile on the CGP.

c. Consider expanding the Developmental Studies Program to include more students and additional faculty.

d. Consider extending techniques used into other areas of instruction.

e. "Require" each participant to have at least one interview with the Learning Specialist and the College Nurse in order to determine if deficiencies stem from one of these areas.

f. Provide an opportunity for additional individualized assistance in terms of tutoring and counseling.

g. Consider allowing a student to enroll in as few or as many classes as he chooses or needs on the basis of interview.

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